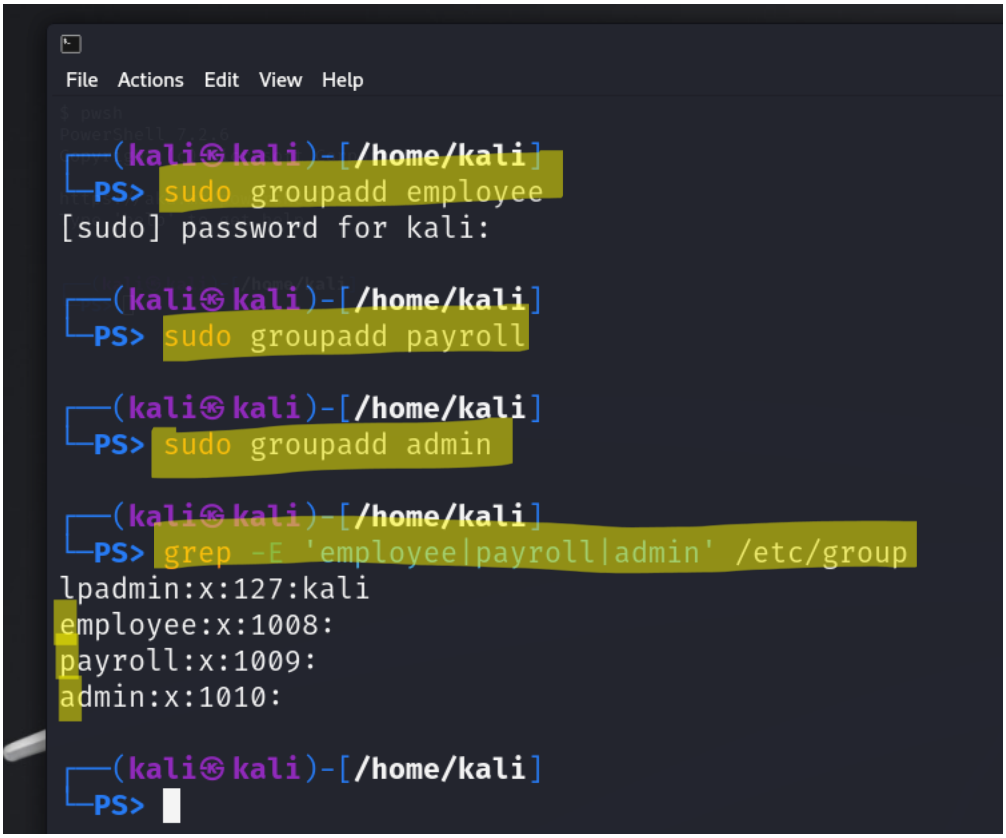
Lab 6 File Permission

Task A: Get accounts and groups ready

Step 1. Create three groups- **employee**, **payroll**, and **admin**.

Explanation: I am not working from root so I use **sudo** commands to have permission for that line. I add the groups required by the lab with command **groupadd** followed by the name of the group. Lastly I check if I successfully added thee groups with command **grep -E** followed by what I am looking for, closed by where they should be located.

Screenshot:



Step 2. Create three user accounts with a specified home directory for **Sophia**, **Olivia**, and **Emma**. Set the primary group for Sophia, Olivia, and Emma to "employee", "payroll", and "admin", respectively. And change their login shell to /bin/bash. Don't forget to set their passwords.

Explanation: I use command **useradd** to followed by **-m -d** to create and define where my user will be and **-s** to re-define where the user will be, ending with **-g** to put the user in the group defined by the lab. I also set the password from its default to whatever I want. I chose password for this lab because I noticed in later steps I will be switching back and forth between users. I use a pipe to work within one line, my output, for example Sophia's

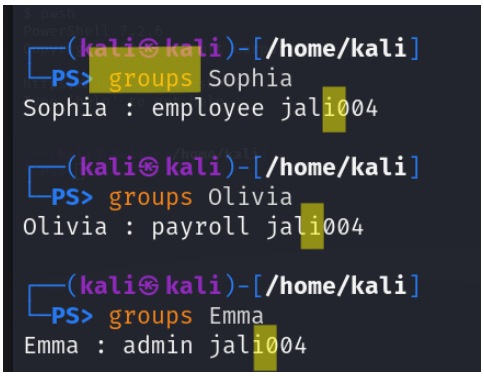
password, as password, will be used as the input for the password change I am making within the line.

Screenshot:

Step 3. Create a shared group called "your_midas" (replace it with your MIDAS name) and set this shared group as the above accounts' secondary group**. After this step, remember to check each user's group profile.**

Explanation: I use the command **groupadd** to create my new group jali004 and I will modify each user I just created with command **usermod -aG** followed by where I want them to go and who I am re-grouping as their secondary group. I then check each user using command **groups**.

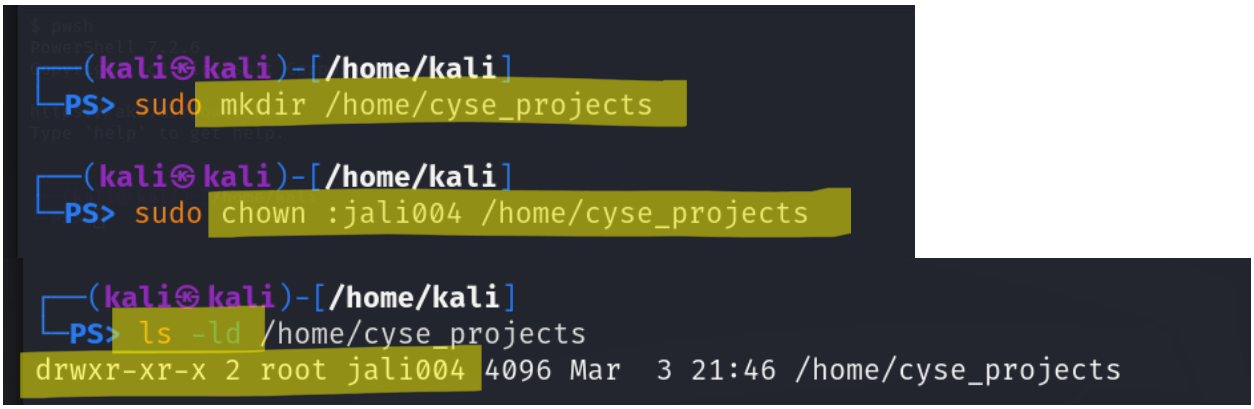
Screenshot:



Step 4. Create a directory named /home/cyse_projects, which is to be owned by the "your_midas" group which is a shared group). After this step, remember to check the permission of this shared directory.

Explanation: I make the required directory with command **mkdir** and use command **chown** to designate the permission (chown allows for me to change the owner of a directory). I then check permissions of this directory using command **ls -ld** as seen below.

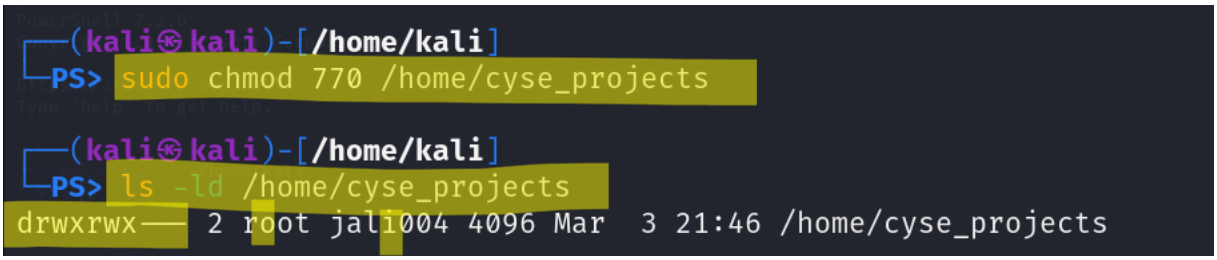
Screenshot:



Step 5. Change the permissions of the /home/cyse_projects directory to "**rwxrwx---**" using the octal method so that only the project group members have access to this directory. **After this step, remember to check the permission of this shared directory.**

Explanation: I use command **chmod** to modify permissions to **770** followed by what I am modifying. Chmod command allows for my modify permissions and access modes. In short, not allow or allow for certain things to be done by certain group members. I then double check the permission level using command **ls -ld**. I notice rwxrwx, and I am good to go.

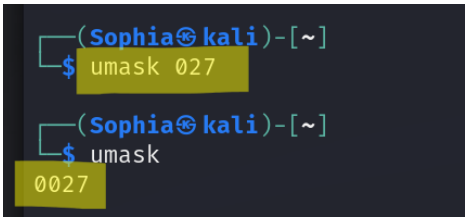
Screenshot:



Step 6. Switch to Sophia's account. Change the default permissions using octal method with umask command, to "**rw-r-----**" for Sophia when she creates a file or directory. Check the value of umask, and permission of a new file after this step.

Explanation: I switch to another user using command **su –** followed by who I am switching to and then type in the password I created, for this lab all users have the password, password. I then use the command **umask** followed by **027** and then check. I use command **umask** because I am working in Sophia, and the output is 0027. Which is what I needed to see.

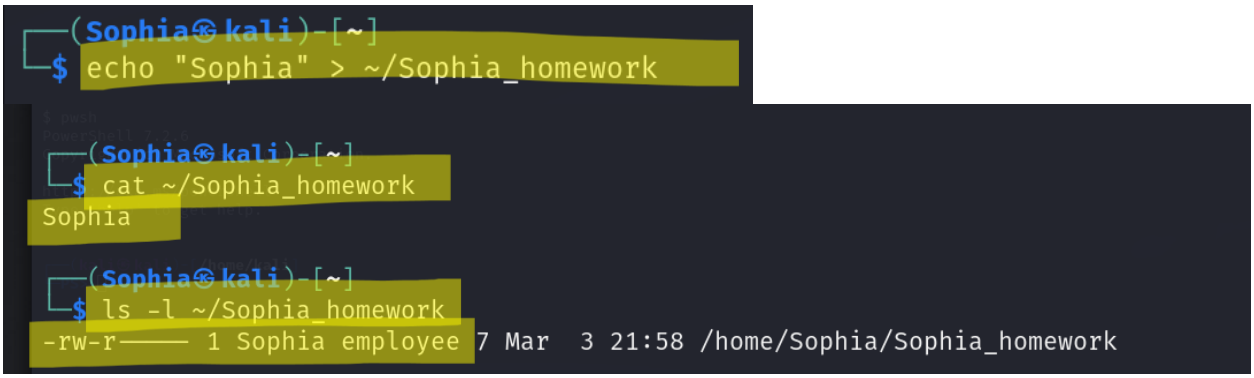
Screenshot:



Step 7. Create a new file called "Sophia_homework" in the home directory of Sophia and put your name in the file as content. After this step, remember to check the content and the permission of the new file. (ls -l Sophia_homework)

Explanation: I use command **echo** followed by what I want to put as an input into Sophia's homework file. I chose her name because at the time I spaced and didn't put Jessica. But it would have been the same process. Just change the input from Sophia to Jessica. Moving on, I then use command **cat** followed by where and what file I am wanting to display. I then use the command **ls -l** to check the contents and permissions of the new file I just created.

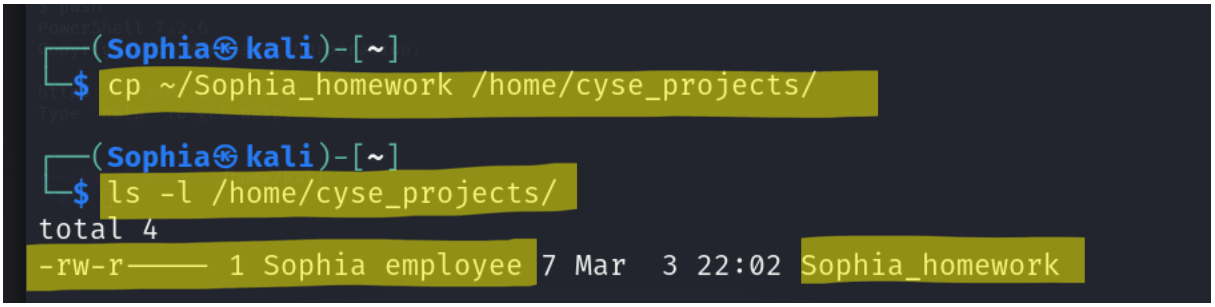
Screenshot:



Step 8. Copy "Sophia_homework" to the /home/cyse_projects directory**.** After this step, remember to check the permission of the file in the shared directory.

Explanation: I use command **cp** to copy the required file into the defined directory required by the lab. I then use the command **ls -l** to double check permissions.

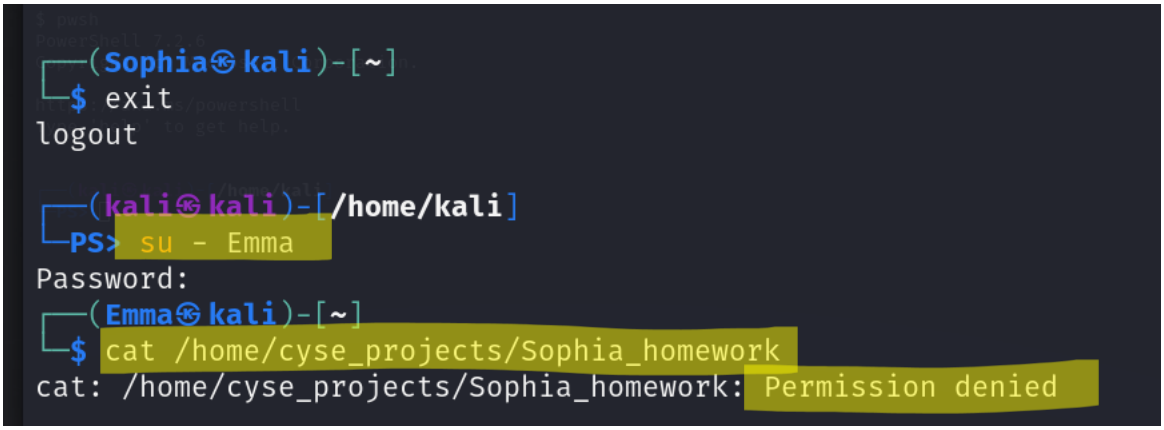
Screenshot:



Step 9. Switch to Emma's account. Try to read "Sophia_homework" in the /home/cyse_projects Directory.

Explanation: use command **exit** to and then command **su –** to switch from kali to Emma. Then I use **command** cat to try and see the required file and my permission is denied. Which is what is supposed to happen.

Screenshot:



Step 10. Exit out of Emma's account and Sophie's account.

Explanation: I use command **exit** to return to main user kali.

Screenshot:

Task B: Set SGID permission

Step 1. Switch to root or the regular user's account. To allow group members to access the files shared in the shared directory, you need to fix the sharing issue by setting the correct **SGID** group values to **/home/cyse_projects** directory.

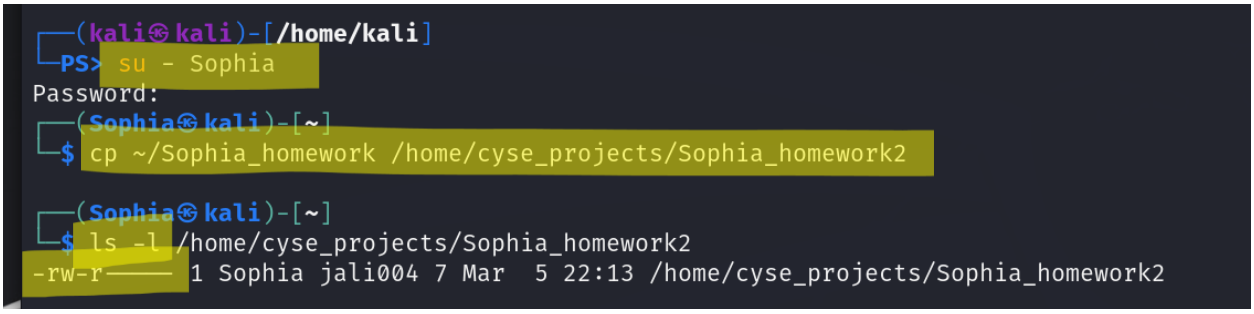
Explanation: I'm not working in root so I use **sudo** followed my **chmod g +s** to set the correct SGID values for the required directory. I double check the change using command **ls -ld** followed by what directory I would like to see.

Screenshot:

Step 2. Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_projects directory as "Sophia_homework**2**".

Explanation: I use command **su** to switch to user **Sophia** followed by the password and then command **cp** to copy the required file. I also define where I want it to go according to the lab. I then double check if I was successful using the **ls -l** command.

Screenshot:



Step 3. Switch to Emma's account. Try to read "Sophia_ homework2" in the /home/cyse_projects directory.

Explanation: I exit and then switch to Emma's account using **exit** and **su** again. I want to view the quired file, I use **cat.**

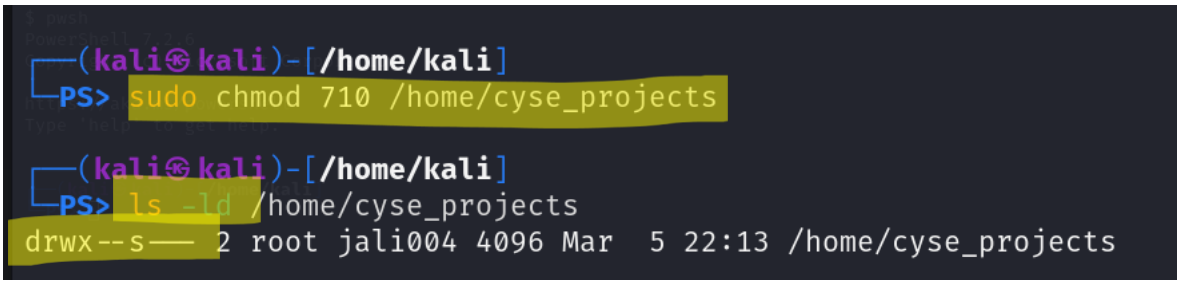
Screenshot:

Task C Continued on Next Page

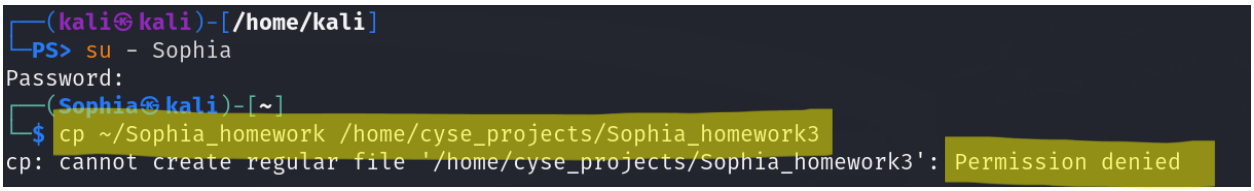
Task C: Unset SGID permissions

Step 1. Switch to root the regular user's account. To disallow group members to access the files in the shared folder, you need to fix the sharing issue by setting the correct **SGID** group values to **/home/cyse_projects** directory to remove the group user read permission.

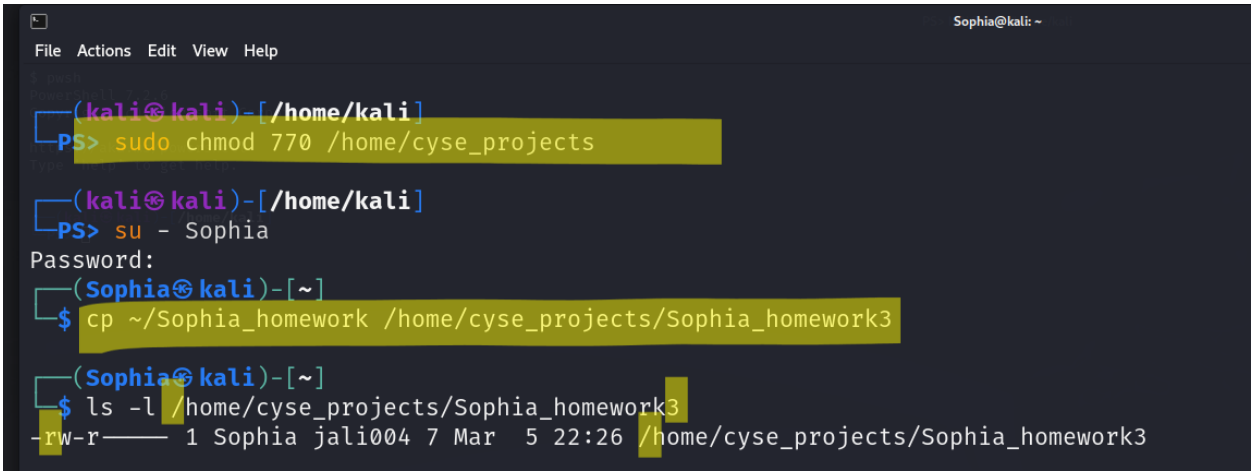
Explanation: I use command **sudo chmod 710** followed by the required directory to set SGID for group values.
Screenshot:



Step 2. Switch to Sophia's account. Copy "Sophia_homework" to the /home/cyse_projects directory as "Sophia_homework3".
Explanation: I am denied access to copy. I want to copy so I go back and use a different SGID.
Screenshot:

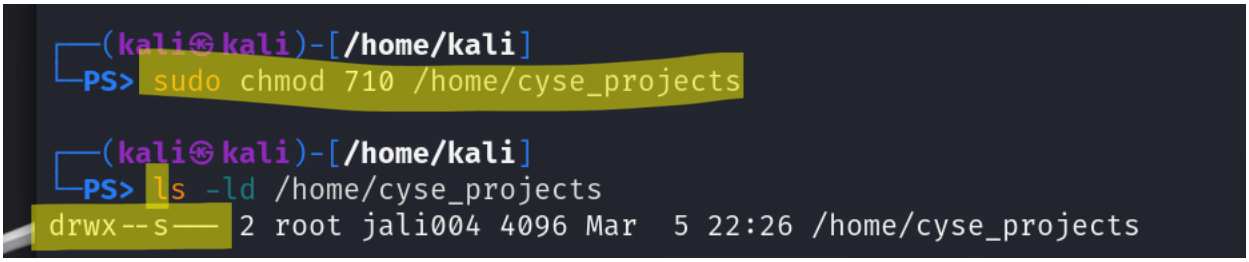


Further Explanation: I edit my SSGID to 770 using **sudo chmod** from kali user, switch back to Sophia using command **su** and then use **cp** to copy the required lab file. I then double check with **ls -l** from Sophia's account. I am successful.
Screenshot:



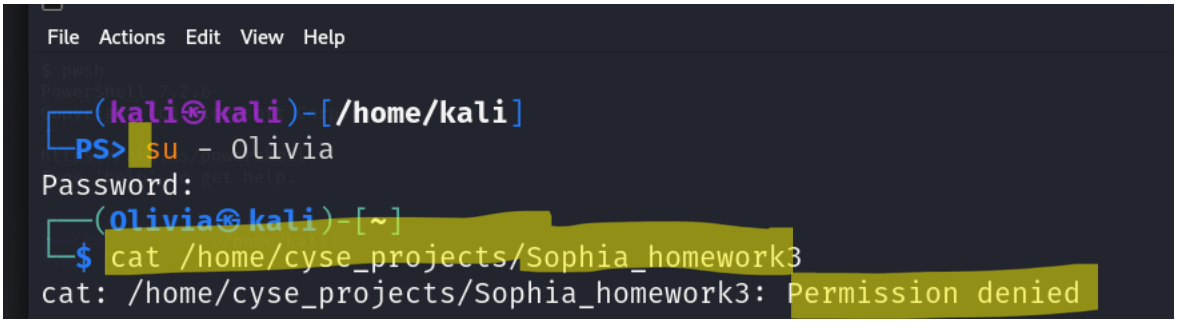
Further Explanation: I then switch back to kali user and use the following **sudo** command **chmod 710** to set the SGID to where I need them to be.

Screenshot:



Step 3. Switch to Olivia's account. Try to read "Sophia_home3" in the /home/cyse_projects directory.

Explanation: I use command **su** to switch from kali user to Olivia and try and read the file using **cat** but I am unable to because I had set the SGID to deny this.
Screenshot:

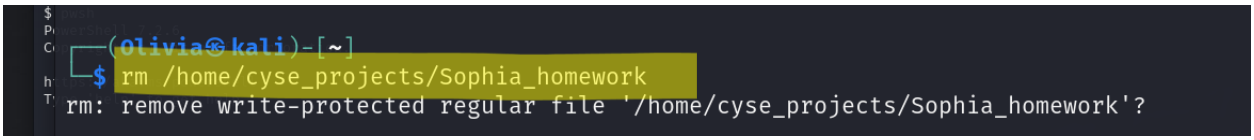


Extra Credit Continued on Next Page

Extra credit: Sticky Bit

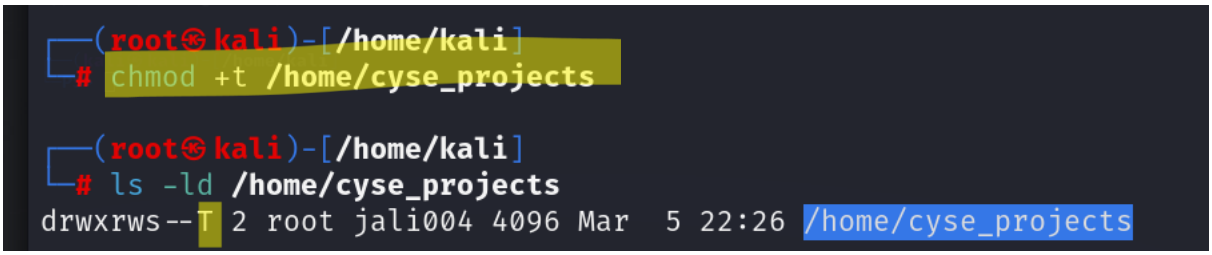
Step 1. Switch to Olivia' account. Delete "Sophia_ homework" in the /home/cyse_projects directory.
Explanation: I am already working in Olivia's account from the previous step so I use command **rm** followed by what file I am removing and where it is located. I am prompted to remove and I click enter for successful removal.

Screenshot:



Step 2. Switch to root account. Set the sticky bit permission, to make files can only be removed by the owner of the file.
Explanation: I switch to root account using command **sudo su** followed by the password, once I am successfully logged on as root I use the command **chmod +t** to set the stick bit permission. I double check this with the command **ls -ld** and notice the capital T on the end of my SGID of my specified file. So I am good to go.

Screenshot:



Step 3. Switch to Olivia' account. Try to delete "Sophia_ homework3" in the /home/cyse_projects directory. Can you delete it this time? Why?

Explanation: I repeat the steps from step 1 and change the homework file I am deleting to the one required for the lab. I am unable to delete and am not prompted. Kali puts my on the next line and I use command **ls -l** followed by what and where I am searching. I see that the file is still in exitance and has the capital T or Sticky Bit working.
I can't delete this time because Olivia is not the owner of the file. Therefore the user does not have permission to delete.

Screenshot: